Vital Issues

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Drawings by C. P. Meier

ATOMS FOR PEACE--
Where Are They?

Shortly after the lurid dawn of the military atomic era over Hiroshima at 9:13 a.m., August 6, 1945, reassuring word got around that the force which had been unloosed to pulverize a city could also be controlled to furnish infinite power for the good of mankind.

Atoms for peace, like the genie from Aladdin's lamp in the old story, could produce such abundance and well-being for the world's peoples that there would no longer be any need to suffer from want.

That was the prophecy.

But what's happened to the development of those atoms for peace?

Nuclear weapons continue to increase in the world's arsenals. And the number of nations with the secret of the atomic and of the hydrogen bomb is increasing, too.

The promise of great benefits from nuclear energy still holds good. But due to a variety of reasons, there have been delays in realizing it.

For one thing, since the start of the cold war, the preoccupation of the world's two most powerful nations—the United States and the Soviet Union—with the development of the atomic and hydrogen bomb has tended to sidetrack other types of nuclear effort. The secrecy that must surround development for military needs inevitably gets in the way.

Another reason for delay was put like this by Secretary General Dag Hammarskjold at the opening of the second United Nations International Conference on the Peaceful Uses of Atomic Energy, Geneva, September 1, 1958. The problems of producing nuclear power cheaply enough to be on the same basis with production costs of power by present conventional means—he said—have been "greater than anticipated three years ago."

Furthermore, the scarcity of other fuels anticipated and feared at the close of World War II has not come about. Instead, particularly in Western Europe, there is actually a surplus of fuels such as coal.

We in the United States, because of our great abundance of usual sources for power, and because of our skill in electric technology, enjoy the benefits of the cheapest power in the world.

For these and other reasons, there's been a slow-down in the development of power through atomic energy.

This goes for almost every nation.

It goes even for Great Britain, where shortages of conventional fuels, because of Britain's insular position, remain a serious matter. Though Britain—a pioneer in the field—is

EDITORIAL ADVISORY COMMITTEE: Dr. James W. Fesler, Professor of Government, Yale University; Dr. Kent Roberts Greenfield, former Chief Historian, Department of the Army; Dr. Allan Nevins, Professor Emeritus of American History, Columbia University, President of the Society of American Historians; Dr. Robert Spiller, Chairman of the Department of American Civilization, University of Pennsylvania, former President of the American Studies Association.
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building nuclear generators of far greater capacity than what we're at present aiming for in the U.S.A., her goal of 5,000,000 nuclear kilowatts by 1965 is being put off by at least a year.

It also goes for Russia, as United States scientists on a tour of the Soviet Union in October, 1959, were relieved to find out. Explaining their cutback, and pointing to their greatly expanding hydroelectric resources, Soviet officials remarked that the immediate potentialities of atomic power had been oversold to the world.

But the present abundance of conventional fuels won't last forever. The enormous usefulness and benefits of nuclear

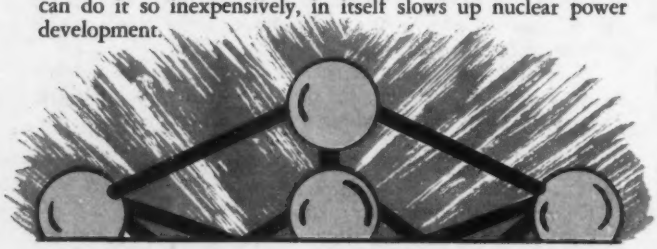
power will become some day a must. Can we afford to fall behind in our preparation for that time?

The U. S. Domestic Nuclear Power Program. Up to 1954, our atomic program has been in the hands of the Atomic Energy Commission. Because the Commission's big problem and responsibility was defense and the threat of Russia, nuclear reactors that were built were designed primarily for their usefulness in our program of defense, including the making and the stockpiling of bombs.

In 1954, Congress passed the Cole-Hickenlooper Act, a major purpose of which was to encourage the participation of private industry in developing a nuclear power program. Though the AEC was to go on exercising strict supervision and control, it was also to help in the development of domestic nuclear power for peaceful use. For the sake of defense, control seemed essential because the basic material employed —uranium—can be used either for bombs or for turbines to generate electricity. Moreover, the knowledge and skills involved apply also to either process.

This peculiar situation, along with other difficulties, put snags in the way of smooth progress for a domestic nuclear energy program. Such snags included the question of secrecy. They included the question of whether the best means for developing atomic power is through private industry or by the government. This inevitably tossed the whole program into the political arena where it is battled over by the protagonists of various points of view. The protagonists of the same point of view also tend to fight among themselves. For instance, in government, should the AEC or Congress have control over the atomic power program?

Technically, atomic power reactors are proving far more expensive and hard to build than anticipated. The fact that we are so good in producing electric power by other means, and can do it so inexpensively, in itself slows up nuclear power development.



Though the domestic program announced by electric utility companies called for construction of at least fifteen nuclear plants, it seems apparent that by 1960 the United States will have in operation only one full-scale atomic power plant designed exclusively for civilian use: the AEC—Duquesne Light Company 60,000 kilowatt station at Shippingport, Pennsylvania, dedicated on May 26, 1958, and built largely at government expense.

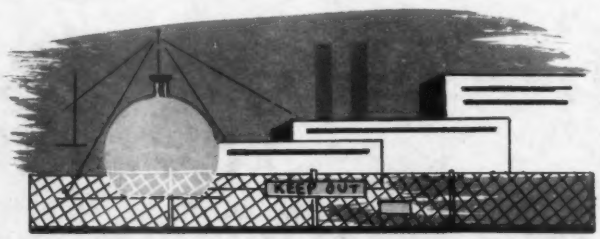
Constructing several large-scale plants seems a useful step for cultivating nuclear power know-how, yet to set up commercial-size reactors calls for a big investment of money and requires freezing of plans and specifications at what is probably still a relatively primitive stage of technology.

Achievement of a true commercial atomic industry has been pushed off many years, according to Dr. Chauncey Starr, general manager of the Atomics International Division of North American Aviation, Inc., speaking on November 2, 1959, before the sixth annual conference of the Atomic Industrial Forum, because of lack of urgency and of adequate Federal support.

Nevertheless by the end of 1959, around $300 million will have been spent by the AEC on atomic power development, with a dozen or so different reactor types built. Expenditures by the electric utility companies themselves for the development of atomic power will amount to around $250 million.

A complaint of the growing and vigorous atomic industry itself is that there hasn't been enough business, either from the government or private customers. The industry would like to see handed over to it more of the developmental work now being carried on in the AEC's laboratories. Gordon H. Weller, vice president of the Uranium Institute of America, reports that production of uranium concentrates in the United States has increased sevenfold in the last few years and that his industry is "in a very satisfactory state in the over-all analysis."

The fact remains that nowhere in the United States is electricity obtained through power from nuclear reactors on a competitive basis, economically, with electricity obtained through conventional sources of power. But the costs of producing nuclear power tend persistently to go down, and the day of competitive equality should arrive. The loosening of secrecy and other restrictions, and the rising flow of information to industry through the Atomic Energy Commission's research programs, will be of great value in attaining this objective.



Guesses vary as to when the day of economical atomic power will dawn. Some put it ten years off. Some, less. Some, more. Dr. W. Kenneth Davis, former director of the AEC's reactor development division, has prophesied that by about 1966 the goal will be achieved in the high power cost areas of the United States. These reactors—he added—will not at first be competitive but will become competitive as costs go up on conventional fuels.

Our domestic nuclear power program has been defined as still in a state of "evolution, expansion, and transition." But though there is no immediate urgent push to get nuclear power in the U.S.A., there is general agreement that we should work on the improvement of nuclear technology to be able to produce power economically when the need turns up.

There's also a prestige value involved—as there is with rocketry. In the eyes of the world, work done to advance the day when the world can enjoy the benefits of cheap and abundant power is a sign and proof of world leadership.

The United States International "Atoms-for-Peace" Program. The program was kicked off by President Eisenhower's Atoms-for-Peace address before the General Assembly

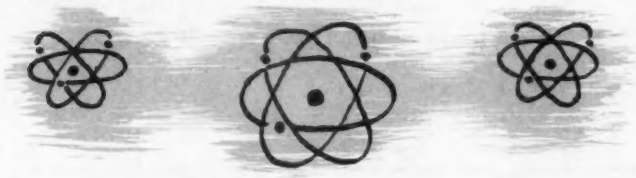
of the United Nations in December, 1953. In 1956, a report to Congress by a committee headed by Robert M. McKinney advocated adoption of an "atomic age foreign policy" based on "bringing new stability and new hope for economic growth to our hard-pressed friends" through assisting them to develop power for peaceful uses through atomic energy.

To help meet the expected shortage of fuels for power, EURATOM had been formed, with six European nations as members—France, West Germany, Belgium, the Netherlands, Luxembourg, and Italy. The idea, with United States help, was to promote the development of nuclear power for peaceful use. The goal, approved by the United States Congress, was to construct six or eight atomic power plants with a total capacity of one million kilowatts.

But with almost every shortage of conventional fuels for power presently becoming a surplus, the EURATOM program has lagged.

The change in the European picture between 1956 and 1959 has caused Robert M. McKinney, chairman of the citizens' committee that made the first report, to declare to Congress in May, 1959: "We need to re-think from scratch the way in which the United States employs the peaceful uses of atomic energy as instruments of international relations."

Such a re-examination has been ordered by the Joint Congressional Atomic Energy Committee, with Mr. McKinney commissioned to make the second report.



It is Mr. McKinney's advice that there be a reorientation of the U.S.-EURATOM program away from construction of nuclear power plants to emphasis on research and development.

The International Atomic Energy Agency. One of the first results of the Atoms-for-Peace program was the setting up, in 1957, of the International Atomic Energy Agency, with W. Sterling Cole, a former chairman of the United States Joint Congressional Committee on Atomic Energy, as its Director General.

The Agency's headquarters are in Vienna, Austria. Its general purpose is to serve as the organization under the auspices of which there would be an international exchange of information on peaceful uses of atomic energy. To further this aim, programs of research, training, and gathering of information are already being carried on.

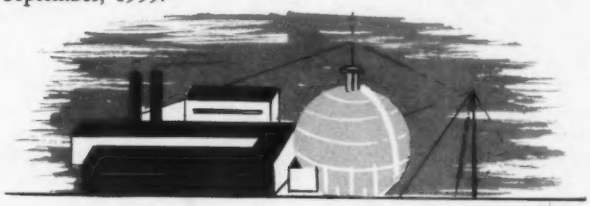
The Agency was also supposed to serve as clearing house for the handling of nuclear fuel for peaceful purposes. But this latter objective has in general not worked out very well. Up to December, 1959, the one transaction of the sort completed by the Agency has been the supplying to Japan of three tons of natural uranium in metallic form, made available to the Agency without charge by the Canadian Government. Instead of using the Agency, most such arrangements have been handled on a nation-to-nation basis. For example, the United States has made some fifty such deals, the Soviet Union about fifteen, Britain a dozen or so, and Canada, three or four.

Right along, a problem for the IAEA and nations concerned has been that of setting up reliable safeguards to prevent misuse of nuclear fuel by nations receiving it, such as stockpiling and weapons experimentation.

As W. Sterling Cole has pointed out, the neglect of the nuclear nations, up to 1959, to cooperate fully with the Agency has hampered the important role that had been set for it "to accelerate and enlarge the contribution of atomic energy to peace, health, and prosperity through the world."

The Inter-American Nuclear Energy Commission is an outgrowth of a suggestion made by President Eisenhower in 1956. Its purpose is the promotion of cooperative training and research in the nuclear sciences among the American Republics.

The United States, the Soviet Union, and Atoms for Peace. Further atoms for peace moves are a result, or by-product, of the meeting between President Eisenhower and Premier Krushchev of the Soviet Union at Camp David in September, 1959.



Among the items discussed were the possibilities for negotiating a formal agreement to cooperate in peaceful atomic research.

Actually an important step in that direction had already been taken during the second United Nations International Conference on Peaceful Uses of Atomic Energy, Geneva, September, 1958. At both the first Conference (1955) and the second, attended by top atomic scientists from all over the world, a growing willingness was shown on the part of representatives of all attending nations, including the Soviet Union, to exchange for mutual benefit and progress the knowledge and experience thus far gained as to the peaceful uses of atomic science. At the 1958 Conference, the United States and the Soviet Union both made public their research in controlled thermonuclear power—the harnessing of the almost incredible explosive force of the H-bomb so that it could be put to peaceful uses.

One concrete result of the Camp David meeting was an exchange of exploratory visits by U.S. and the S.U. nuclear scientists.

The way for this was paved during several lengthy conferences between John McCone, chairman of the United States Atomic Energy Commission, and his opposite number in the U.S.S.R., Professor Vasily S. Yemelyanov, during the visit to the United States of Premier Krushchev and his party.

As a result of these conferences, a joint statement was issued recommending the stepping up of U.S.-S.U. cooperation in peaceful atomic development, and designating the International Atomic Energy Agency as the intermediary.

In October, as a result of arrangements made at Camp David, a team of United States nuclear scientists, headed by Chairman John McCone of the AEC, went on a ten-day inspection tour of Soviet laboratories and installations. They became the first passengers to go for a sail in the Soviet Union's new atomic-powered icebreaker, the Lenin, taking a four-hour cruise in the Gulf of Finland.

As a result of visiting research institutes in Moscow and Leningrad, inspecting atomic power stations and a test reactor, uranium mines, and processing centers, the U.S. delegation could report that some Soviet equipment in nuclear research is more advanced than America's, some less so.

As for work on control of the energy of hydrogen fusion (the H-bomb principle), Chairman McCone reported that he

foresaw "no chance of the Soviet scientists opening as wide a gap as they had in rocketry."

Things look about even.

In November, Russian scientists, headed by Professor Yemelyanov, made a similar tour in the U.S.A.

The fate of further cooperation between the U. S. and S. U. in atoms for peace still lies ahead. As Commissioner McCone has pointed out, collaboration is possible only if both sides declassify equivalent amounts of information about nuclear research.

"Both sides"—he said—"must have the same ground rules in classification of information so that free discussion can take place in all facets of the work. Otherwise collaboration will break down."

It is the announced intention of both sides to utilize the IAEA as repository for useful information on peaceful application of atomic energy developed by the two countries. They have also declared that they will make a real effort to help the Agency spread this information around.

All this looks promising for . . .

Atoms for Peace. Of course atomic energy to generate power is by no means the only use that increasingly lies ahead. It's a fabulous use, however, and once its processes are perfected should cut costs down so that nuclear power will be practically free. Uranium and thorium, the nuclear fuels, once feared to be scarce, exist in such abundance that they should last thousands and even millions of years.

Power on that basis can take care of the needs of the present "have-not" nations as well as the needs of the "haves." Beyond the earth, it can drive rockets and space ships at millions of miles an hour to the moon and planets.

Already radioisotopes—a product of nuclear reactors—are working wonders in scientific exploration, medicine, and in industry, and will continue to perform even more. The isotope, for instance, is one of the essential tools to help solve the mechanism of photosynthesis, the process by which food is made by plants, with the help of energy from the sun, out of water and the carbon dioxide found in the air. If we discover how to do that, want will become even more impossible, and we shall also have learned how to harness directly the practically limitless energy of the sun.

"It is not too much to expect"—to quote a statement by Admiral Lewis L. Strauss, former chairman of the Atomic Energy Commission—"that our children will enjoy in their homes electrical power too cheap to meter, will know of great periodic regional famines in the world only as matters of history, will travel effortlessly over the seas and under them and through the air with a minimum of danger and at great speeds, and will experience a life span far longer than ours, as disease yields and man comes to understand what causes him to age. This is the forecast for an age of peace."

The greatest uses lie ahead. In his book, *Men and Atoms,* William L. Laurence, Science Editor of *The New York Times,* remarks that "the sooner man becomes fully aware of them the quicker will come their fruition."

That puts atoms for peace directly up to each of us.

The benefits of atoms for peace are worth seeking.

FOR FURTHER INFORMATION

Peaceful Uses of Atomic Energy, U. S. Government Printing Office, Washington, D. C., 1956

Vol. 1, Report of Panel on Impact of Peaceful Uses of Atomic Energy, 45¢

Vol. 2, Background material for report of Panel on Impact of Peaceful Uses of Atomic Energy, $2.00

Atoms for Peace, U.S.A., 1958, a pictorial survey prepared for the U.S. Atomic Energy Commission, U. S. Government Printing Office, Washington, D. C., $4.50

Laurence, William L., ***Men and Atoms,*** Simon and Schuster, New York, 1959, $4.50

Many authorities were consulted during the composition of this guide. Research data compiled by Marjorie Way Berkovits. The text is a staff production.

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